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upon the geology of the Amazon valley. Among these contributions are Hartt's and Rathbun's papers on the Devonian fossils of Pará, Derby's papers on the Carboniferous and on the Physical Geography of the Lower Amazon, and Clarke's report on the Eréré trilobites, besides a number of papers of minor importance, but all of them of value.

Director Goeldi deserves great credit for bringing out at last the work of the men who have done so much and such important pioneer work for geology in Brazil.

The Devonian fauna of the Rio Mãecurú. By DR. F. KATZER.

The same number of the *Boletim* contains an interesting paper by Dr. Friederich Katzer on "The Devonian fauna of the Rio Mãecurú, and its relations to the faunas of the other Devonian terranes of the globe." His studies are based upon the materials gathered by Hartt and Derby and some later collections made in 1896. The conclusion is reached that the Rio Mãecurú fauna resembles more closely that of the middle Devonian of North America than it does the lower Devonian with which it has hitherto been correlated. One of the beds he correlates more exactly with the Hamilton of the New York section. In comparing the fauna with the Devonian of Europe he says it should be compared to the upper part of the lower Devonian. "But as there can be no doubt that the Rio Mãecurú fauna corresponds to that of the Hamilton of North America, which is now considered to belong to the middle Devonian we are obliged to assume *a non-simultaneous development of certain forms in the American and European provinces of the Devonian sea, or a migration of these forms from the latter to the former provinces.* Thus the spirifers with long wings show their principal development in the Rhenish Lower Devonian, but in North America and on the Rio Mãecurú only in the middle Devonian. *Fro-pidoleptus carinatus* Conrad is found on the Rhine in the lower Coblenz beds, while in America, including the Rio Mãecurú territory, it occurs only in the middle Devonian. The same is true of corals of the genus *Pleurodictyum* which, in Europe, are found predominating in the lower Devonian and in America in the middle Devonian.

"All this shows that these groups of animals, probably on account of progressive alterations, especially of depth, in the sea of the first

Devonian epoch, migrated from Central Europe to America where they are now presented in the middle Devonian."

Dr. Katzer's study of these Brazilian fossils is especially interesting in connection with the work of Dr. Henry S. Williams on the fauna of the Cuboides Zone. (Bull. G. S. A. I. 481-500.)

JOHN C. BRANNER.

Report of the United States Deep Waterways Commission. By the Commissioners JAMES B. ANGELL, JOHN F. RUSSELL, LYMAN E. COOLEY. Washington, 1897.

The Deep Waterways Commission was appointed by the President in response to a joint resolution of Congress, introduced in February 1895, to make inquiry and report after conference with such similar Commissioners as might be appointed on behalf of Great Britain or the Dominion of Canada, concerning the feasibility of the construction of canals which will enable vessels engaged in ocean commerce to pass into the Great Lakes. The United States Commissioners and also those appointed by the Canadian government have devoted a year or more to the investigation and have prosecuted their inquiries with such thoroughness that their report contains much of value to geologists and hydrographers as well as the commercial world. It embraces 263 pages of descriptive and statistical matter and an elaborate series of maps, diagrams and profile sections.

Of interest to geologists and hydrographers are the tables and diagrams exhibiting the fluctuations in the levels of the Great Lakes and their outlets for each month from 1860 to 1895; a report and diagrams setting forth the effects of gales on Lake Erie; and an accurate map of the basin of the Great Lakes. The length of the ice season is treated with great fullness, there being 176 specific tables and five diagrams, covering not only the basin of the Great Lakes but much surrounding territory. The profiles setting forth the variations in depth of the several lakes with their connecting channels and of the St. Lawrence and Hudson rivers, give a clearer impression than can be obtained from charts. The great inequalities in depth found in the lower portions of the Hudson and St. Lawrence rivers are brought out with especial clearness, and they will stimulate inquiry into the history or mode of development of such abnormal stream beds.